# Appendices

## Appendix A: Agency Publications

**Assembly Concurrent Resolution Number 211**
On May 16, 2002 (the official California Bike-to-Work Day), Assembly Member Joe Nation (D-San Rafael) introduced Assembly Concurrent Resolution Number 211, relative to integrating walking and biking into transportation infrastructure. This advisory measure encourages all cities and counties to implement the policies of the California Department of Transportation Deputy Directive 64 and the United States Department of Transportation's design guidance document on integrating bicycling and walking when building their transportation infrastructure. The text of the resolution is as follows:

WHEREAS, Bicycling and walking contribute to cleaner air; and

WHEREAS, Bicycling and walking provide affordable and healthy transportation options for many of the 10 million Californians who do not possess a driver's license; and

WHEREAS, The State Department of Health Services has declared that more than 40,000 Californians annually die from causes related to physical inactivity; and

WHEREAS, The United States Centers for Disease Control has determined that changes in the community environment to promote physical activity may offer the most practical approach to prevent obesity or reduce its co-morbidities. Automobile trips that can be safely replaced by walking or bicycling offer the first target for increased physical activity in communities; and

WHEREAS, Bicycling and walking contribute to safeguarding our coast from offshore oil drilling and enhance California's energy independence and national security by reducing our reliance upon imported oil; and

WHEREAS, Designing roads for safe and efficient travel by bicyclists and pedestrians saves lives; and

WHEREAS, Bicyclists and pedestrians pay sales taxes which provide for the majority of local transportation spending; and

WHEREAS, Local demand for funding from the Bicycle Transportation Account, the Safe Routes to School, and the Transportation Enhancement Activity Programs far exceeds available moneys; and

WHEREAS, The best use of limited financial resources is to include bicycle and pedestrian elements into roadway projects where feasible; and

WHEREAS, Bicycling and walking reduce traffic congestion in California; and

WHEREAS, In February 2000, the United States Department of Transportation issued a design guidance statement titled, "Accommodating Bicycle and Pedestrian Travel: A Recommended Approach-A United States Department of Transportation Policy Statement on Integrating Bicycling and Walking into Transportation Infrastructure;" and

WHEREAS, In March 2001, the California Department of Transportation issued Deputy Directive 64 titled "Accommodating Non-Motorized Travel" which states that "The Department fully considers the needs of non-motorized travelers (including pedestrians, bicyclists and persons with disabilities) in all programming, planning maintenance, construction, operations, and project development activities and products. This includes incorporation of the best available standards in all of the Department's practices. The Department adopts the best practices concepts in the US DOT Policy Statement on Integrating Bicycling And Walking into Transportation Infrastructure;" now, therefore, be it

RESOLVED by the Assembly of the State of California, the Senate thereof concurring, That in order to improve the ability of all Californians who choose to walk or bicycle to do so safely and efficiently, the Legislature of the State of California hereby encourages all cities and counties to implement the policies of the California Department of Transportation Deputy Directive 64 and the United States Department of Transportation's design guidance document on integrating bicycling and walking when building their transportation infrastructure.

**California Department of Transportation Deputy Directive Number: DD-64**
**Title: Accommodating Non-Motorized Travel**

**Policy**
The Department fully considers the needs of non-motorized travelers (including pedestrian bicyclists and persons with disabilities) in all programming, planning, maintenance, construction, operations and project development activities and products. This includes incorporation of the best available standards in all of the Department's practices. The Department adopts the best practice concepts in the U.S. DOT Policy Statement on "Integrating Bicycling and Walking into Transportation Infrastructure."

**Definition/Background**
The planning and project development process seeks to provide the people of California with a degree of mobility that is in balance with other values. They must ensure that economic, social and environmental effects are fully considered along with technical issues, so that the best interest of the public is served. This includes all users of California's facilities and roadways.

Attention must be given to many issues including, but not limited to, the following:
• Safe and efficient transportation for all users of the transportation system
• Provision of alternatives for non-motorized travel
• Support of the Americans With Disabilities Act (ADA)
• Attainment of community goals and objectives
• Transportation needs of low-mobility, disadvantaged groups
• Support of the state's economic development

• Elimination or minimization of adverse effects on the environment, natural resources, public services, aesthetic features and the community
• Realistic financial estimates
• Cost effectiveness

Individual projects are selected for construction on the basis of overall multimodal system benefits as well as community goals, plans and values. Decisions place emphasis on making different transportation modes work together safely and effectively. Implicit in these objectives is the need to accommodate non-motorized travelers as an important consideration in improving the transportation system.

**Responsibilities**
Deputy Director, Planning and Modal Programs:
• Ensures that the needs of non-motorized travelers are incorporated into the program element of Transportation Planning and the modal elements of the statewide strategy for mobility.
• Ensures that liaison exists with non-motorized advocates to incorporate non-motorized needs into all program areas including project and system planning.
• Ensures that the needs of the non-motorized travelers are incorporated in personal movement strategies.

Deputy Director, Project Delivery:
• Ensures that projects incorporate best practices for non-motorized travel in the design and construction of capital projects.

Deputy Director, Maintenance and Operations:
• Ensures that the transportation system is maintained and operated in a safe and efficient manner with the recognition that non-motorized travel is a vital element of the transportation system.
• Ensures that the needs of non-motorized travelers are met in maintenance work zones.

District Directors:
• Ensure that best practices for non-motorized travel are included in all district projects and project planning.
• Ensure that best practices for non-motorized travel are implemented in maintenance and travel operations practices.
Chief, Division of Design
• Ensures that project delivery procedures and design guidance include the needs of non-motorized travelers as a regular part of doing business.
• Ensures that all project delivery staff is trained and consider the needs of the non-motorized traveler while developing and designing transportation projects.

Chief, Division of Planning:
• Ensures incorporation of non-motorized travel elements in transportation plans, programs and studies prepared by Transportation Planning.
• Ensures planning staff understand and are trained in the principles and design guidelines, non-motorized funding sources and the planning elements of non-motorized transportation.
• Coordinates Caltrans projects with non-motorized interest groups.

• Ensures incorporation of non-motorized travel elements in Corridor Studies prepared by Transportation Planning.

Chief, Division of Environmental Analysis:
• Ensures that non-motorized travel groups potentially affected by Caltrans projects are identified and have the opportunity to be involved in the project development process.
• Advocates effectively for all reasonable project-specific best practices that support or promote non-motorized travel.

Chief, Division of Maintenance:
• Ensures State-owned facilities are maintained consistent with the needs of motorized and non-motorized travelers.
• Provides guidance and training to those maintaining roadways to be aware of and sensitive to the needs of non-motorized travel.

Chief, Division of Traffic Operations:
• Ensures that the transportation system is operated in accordance with the needs of all travelers including non-motorized travel.
• Provides training and guidance on the operation of the transportation facility consistent with providing mobility for all users.
• Recommends safety measures in consideration of non-motorized travel on California's transportation system.

Chief, Division of Local Assistance:
• Ensures that Local Assistance staff, local agencies and interest groups are familiar with funding programs that are available for non-motorized travelers.
• Ensures that program coordinators responsible for non-motorized travel modes are familiar with non-motorized issues and advocate on behalf of non-motorized travelers.

**Applicability**
All Caltrans employees who are involved in the planning, design, construction, maintenance and operations of the transportation system.

TONY V. HARRIS
Chief Deputy Director

**Design Guidance Accommodating Bicycle and Pedestrian Travel:**
**A Recommended Approach: A US DOT Policy Statement on Integrating Bicycling and Walking into Transportation Infrastructure**

**Purpose**
Accommodating Bicycle and Pedestrian Travel: A Recommended Approach is a policy statement adopted by the United States Department of Transportation. USDOT hopes that public agencies, professional associations, advocacy groups, and others adopt this approach as a way of committing themselves to integrating bicycling and walking into the transportation mainstream.

The Design Guidance incorporates three key principles:
a) a policy statement that bicycling and walking facilities will be incorporated into all transportation projects unless exceptional circumstances exist;

b) an approach to achieving this policy that has already worked in State and local agencies; and

c) a series of action items that a public agency, professional association, or advocacy group can take to achieve the overriding goal of improving conditions for bicycling and walking.

The Policy Statement was drafted by the U.S. Department of Transportation in response to Section 1202 (b) of the Transportation Equity Act for the 21st Century (TEA-21) with the input and assistance of public agencies, professional associations and advocacy groups.

**Introduction**
Bicycling and walking issues have grown in significance throughout the 1990s. As the new millennium dawns public agencies and public interest groups alike are striving to define the most appropriate way in which to accommodate the two modes within the overall transportation system so that those who walk or ride bicycles can safely, conveniently, and comfortably access every destination within a community.

Public support and advocacy for improved conditions for bicycling and walking has created a widespread acceptance that more should be done to enhance the safety, comfort, and convenience of the non-motorized traveler. Public opinion surveys throughout the 1990s have demonstrated strong support for increased planning, funding and implementation of shared use paths, sidewalks and on-street facilities.

At the same time, public agencies have become considerably better equipped to respond to this demand. Research and practical experience in designing facilities for bicyclists and pedestrians has generated numerous national, state and local design manuals and resources. An increasing number of professional planners and engineers are familiar with this material and are applying this knowledge in towns and cities across the country.

The 1990 Americans with Disabilities Act, building on an earlier law requiring curb ramps in new, altered, and existing sidewalks, added impetus to improving conditions for sidewalk users. People with disabilities rely on the pedestrian and transit infrastructure, and the links between them, for access and mobility.

Congress and many State legislatures have made it considerably easier in recent years to fund non-motorized projects and programs (for example, the Intermodal Surface Transportation Efficiency Act and the Transportation Equity Act for the 21st Century), and a number of laws and regulations now mandate certain planning activities and design standards to guarantee the inclusion of bicyclists and pedestrians.

Despite these many advances, injury and fatality numbers for bicyclists and pedestrians remain stubbornly high, levels of bicycling and walking remain frustratingly low, and most communities continue to grow in ways that make travel by means other than the private automobile quite

challenging. Failure to provide an accessible pedestrian network for people with disabilities often requires the provision of costly paratransit service. Ongoing investment in the Nation's transportation infrastructure is still more likely to overlook rather than integrate bicyclists and pedestrians.

In response to demands from user groups that every transportation project include a bicycle and pedestrian element, Congress asked the Federal Highway Administration (FHWA) to study various approaches to accommodating the two modes. The Transportation Equity Act for the 21st Century (TEA-21) instructs the Secretary to work with professional groups such as AASHTO, ITE, and other interested parties to recommend policies and standards that might achieve the overall goal of fully integrating bicyclists and pedestrians into the transportation system.

TEA-21 also says that, "Bicycle transportation facilities and pedestrian walkways shall be considered, where appropriate, in conjunction with all new construction and reconstruction of transportation projects, except where bicycle and pedestrian use are not permitted." (Section 1202)

Sec. 1202. Bicycle Transportation And Pedestrian Walkways.
(b) Design Guidance.

(1) In general - In implementing section 217(g) of title 23, United States Code, the Secretary, in cooperation with the American Association of State Highway and Transportation Officials, the Institute of Transportation Engineers, and other interested organizations, shall develop guidance on the various approaches to accommodating bicycles and pedestrian travel.

(2) Issues to be addressed - The guidance shall address issues such as the level and nature of the demand, volume, and speed of motor vehicle traffic, safety, terrain, cost, and sight distance.

(3) Recommendations - The guidance shall include recommendations on amending and updating the policies of the American Association of State Highway and Transportation Officials relating to highway and street design standards to accommodate bicyclists and pedestrians.

(4) Time period for development - The guidance shall be developed within 18 months after the date of enactment of this Act.

In August 1998, FHWA convened a Task Force comprising representatives from FHWA, AASHTO, ITE, bicycle and pedestrian user groups, State and local agencies, the U.S. Access Board and representatives of disability organizations to seek advice on how to proceed with developing this guidance. The Task Force reviewed existing and proposed information on the planning and technical design of facilities for bicyclists and pedestrians and concluded that these made creation of another design manual unnecessary. For example, AASHTO published a bicycle design manual in 1999 and is working on a pedestrian facility manual.

The area where information and guidance was most lacking was in determining when to include designated or special facilities for bicyclists and pedestrians in transportation projects. There can also be uncertainty about the type of facility to provide, and the design elements that are required to ensure accessibility.

For example, when a new suburban arterial road is planned and designed, what facilities for bicyclists and pedestrians should be provided? The task force felt that once the decision to provide a particular facility was made, the specific information on designing that facility is generally available. However, the decision on whether to provide sidewalks on neither, one or both sides of the road, or a shoulder, striped bike lane, wide outside lane or separate trail for bicyclists is usually made with little guidance or help.

After a second meeting with the Task Force in January 1999, FHWA agreed to develop a Policy Statement on Accommodating Bicyclists and Pedestrians in Transportation Projects to guide State and local agencies in answering these questions. Task Force members recommended against trying to create specific warrants for different facilities (warrants leave little room for engineering judgment and have often been used to avoid providing facilities for bicycling and walking). Instead, the purpose of the Policy Statement is to provide a recommended approach to the accommodation of bicyclists and pedestrians that can be adopted by State and local agencies (as well as professional societies and associations, advocacy groups, and Federal agencies) as a commitment to developing a transportation infrastructure that is safe, convenient, accessible, and attractive to motorized AND non-motorized users alike. The Policy Statement has four elements:

a) An acknowledgment of the issues associated with balancing the competing interests of motorized and non-motorized users;

b) A recommended policy approach to accommodating bicyclists and pedestrians (including people with disabilities) that can be adopted by an agency or organizations as a statement of policy to be implemented or a target to be reached in the future;

c) A list of recommended actions that can be taken to implement the solutions and approaches described above; and

d) Further information and resources on the planning, design, operation, and maintenance of facilities for bicyclists and pedestrians.

**The Challenge: Balancing Competing Interests**

For most of the second half of the 20th Century, the transportation, traffic engineering and highway professions in the United States were synonymous. They shared a singular purpose: building a transportation system that promoted the safety, convenience and comfort of motor vehicles. The post-war boom in car and home ownership, the growth of suburban America, the challenge of completing the Interstate System, and the continued availability of cheap gasoline all fueled the development of a transportation infrastructure focused almost exclusively on the private motor car and commercial truck.

Initially, there were few constraints on the traffic engineer and highway designer. Starting at the centerline, highways were developed according to the number of motor vehicle travel lanes that were needed well into the future, as well as providing space for breakdowns. Beyond that, facilities for bicyclists and pedestrians, environmental mitigation, accessibility, community preservation, and aesthetics were at best an afterthought, often simply overlooked, and, at worst, rejected as unnecessary, costly, and regressive. Many States passed laws preventing the use of State gas tax funds on anything other than motor vehicle lanes and facilities. The resulting highway environment discourages bicycling and walking and has made the two modes more dangerous. Further, the ability of pedestrians with disabilities to travel independently and safely has been compromised, especially for those with vision impairments.

Over time, the task of designing and building highways has become more complex and challenging. Traffic engineers now have to integrate accessibility, utilities, landscaping, community preservation, wetland mitigation, historic preservation, and a host of other concerns into their plans and designs - and yet they often have less space and resources within which to operate and traffic volumes continue to grow.

The additional “burden” of having to find space for pedestrians and bicyclists was rejected as impossible in many communities because of space and funding constraints and a perceived lack of demand. There was also anxiety about encouraging an activity that many felt to be dangerous and fraught with liability issues. Designers continued to design from the centerline out and often simply ran out of space before bike lanes, paved shoulders, sidewalks and other “amenities” could be included.

By contrast, bicycle and pedestrian user groups argue the roadway designer should design highways from the right-of-way limits in, rather than the centerline out. They advocate beginning the design of a highway with the sidewalk and/or trail, including a buffer before the paved shoulder or bike lane, and then allocating the remaining space for motor vehicles. Through this approach, walking and bicycling are positively encouraged, made safer, and included as a critical element in every transportation project rather than as an afterthought in a handful of unconnected and arbitrary locations within a community.

Retrofitting the built environment often provides even more challenges than building new roads and communities: space is at a premium and there is a perception that providing better conditions for bicyclists and pedestrians will necessarily take away space or convenience from motor vehicles.

During the 1990s, Congress spearheaded a movement towards a transportation system that favors people and goods over motor vehicles with passage of the Intermodal Surface Transportation Efficiency Act (1991) and the Transportation Equity Act for the 21st Century (1998). The call for more walkable, livable, and accessible communities, has seen bicycling and walking emerge as an “indicator species” for the health and well-being of a community. People want to live and work in places where they can safely and conveniently walk and/or bicycle and not always have to deal with worsening traffic congestion, road rage and the fight for a parking space. Vice President Gore launched a Livability Initiative in 1999 with the ironic statement that “a gallon of gas can be used up just driving to get a gallon of milk.”

The challenge for transportation planners, highway engineers and bicycle and pedestrian user groups, therefore, is to balance their competing interest in a limited amount of right-of-way, and to develop a transportation infrastructure that provides access for all, a real choice of modes, and safety in equal measure for each mode of travel.

This task is made more challenging by the widely divergent character of our nation's highways and byways. Traffic speeds and volumes, topography, land use, the mix of road users, and many other factors mean that a four-lane highway in rural North Carolina cannot be designed in the same way as a four-lane highway in New York City, a dirt road in Utah or an Interstate highway in Southern California. In addition, many different agencies are responsible for the development, management, and operation of the transportation system.

In a recent memorandum transmitting Program Guidance on bicycle and pedestrian issues to FHWA Division Offices, the Federal Highway Administrator wrote, "We expect every transportation agency to make accommodation for bicycling and walking a routine part of their planning, design, construction, operations and maintenance activities." The Program Guidance itself makes a number of clear statements of intent:

• Congress clearly intends for bicyclists and pedestrians to have safe, convenient access to the transportation system and sees every transportation improvement as an opportunity to enhance the safety and convenience of the two modes.

• "Due consideration" of bicycle and pedestrian needs should include, at a minimum, a presumption that bicyclists and pedestrians will be accommodated in the design of new and improved transportation facilities.

• To varying extents, bicyclists and pedestrians will be present on all highways and transportation facilities where they are permitted and it is clearly the intent of TEA-21 that all new and improved transportation facilities be planned, designed and constructed with this fact in mind.

• The decision not to accommodate [bicyclists and pedestrians] should be the exception rather than the rule. There must be exceptional circumstances for denying bicycle and pedestrian access either by prohibition or by designing highways that are incompatible with safe, convenient walking and bicycling.

The Program Guidance defers a suggested definition of what constitutes "exceptional circumstances" until this Policy Statement is completed. However, it does offer interim guidance that includes controlled access highways and projects where the cost of accommodating bicyclists and pedestrians is high in relation to the overall project costs and likely level of use by non-motorized travelers.

Providing access for people with disabilities is a civil rights mandate that is not subject to limitation by project costs, levels of use, or "exceptional circumstances". While the Americans with Disabilities Act does not require pedestrian facilities in the absence of a pedestrian route, it does require that pedestrian facilities, when newly constructed or altered, be accessible.

**Policy Statement**

1. Bicycle and pedestrian ways shall be established in new construction and reconstruction projects in all urbanized areas unless one or more of three conditions are met:

• Bicyclists and pedestrians are prohibited by law from using the roadway. In this instance, a greater effort may be necessary to accommodate bicyclists and pedestrians elsewhere within the right of way or within the same transportation corridor.

• The cost of establishing bikeways or walkways would be excessively disproportionate to the need or probable use. Excessively disproportionate is defined as exceeding twenty percent of the cost of the larger transportation project.

• Where scarcity of population or other factors indicate an absence of need. For example, the Portland Pedestrian Guide requires “all construction of new public streets” to include sidewalk improvements on both sides, unless the street is a cul-de-sac with four or fewer dwellings or the street has severe topographic or natural resource constraints.

2. In rural areas, paved shoulders should be included in all new construction and reconstruction projects on roadways used by more than 1,000 vehicles per day, as is currently the case in Wisconsin. Paved shoulders have safety and operational advantages for all road users in addition to providing a place for bicyclists and pedestrians to operate.

Rumble strips are not recommended where shoulders are used by bicyclists unless there is a minimum clear path of four feet in which a bicycle may safely operate.

3. Sidewalks, shared use paths, street crossings (including over- and undercrossings), pedestrian signals, signs, street furniture, transit stops and facilities, and all connecting pathways shall be designed, constructed, operated and maintained so that all pedestrians, including people with disabilities, can travel safely and independently.

4. The design and development of the transportation infrastructure shall improve conditions for bicycling and walking through the following additional steps:

• Planning projects for the long-term. Transportation facilities are long-term investments that remain in place for many years. The design and construction of new facilities that meet the criteria in item 1) above should anticipate likely future demand for bicycling and walking facilities and not preclude the provision of future improvements. For example, a bridge that is likely to remain in place for 50 years might be built with sufficient width for safe bicycle and pedestrian use in anticipation that facilities will be available at either end of the bridge even if that is not currently the case.

• Addressing the need for bicyclists and pedestrians to cross corridors as well as travel along them. Even where bicyclists and pedestrians may not commonly use a particular travel corridor that is being improved or constructed, they will likely need to be able to cross that corridor safely and conveniently. Therefore, the design of intersections and interchanges shall accommodate bicyclists and pedestrians in a manner that is safe, accessible and convenient.

• Getting exceptions approved at a senior level. Exceptions for the non-inclusion of bikeways and walkways shall be approved by a senior manager and be documented with supporting data that indicates the basis for the decision.

• Designing facilities to the best currently available standards and guidelines. The design of facilities for bicyclists and pedestrians should follow design guidelines and standards that are commonly used, such as the AASHTO Guide for the Development of Bicycle Facilities, AASHTO's A Policy on Geometric Design of Highways and Streets, and the ITE Recommended Practice "Design and Safety of Pedestrian Facilities".

**Policy Approach**

"Rewrite the Manuals" Approach

Manuals that are commonly used by highway designers covering roadway geometrics, roadside safety, and bridges should incorporate design information that integrates safe and convenient facilities for bicyclists and pedestrians — including people with disabilities - into all new highway construction and reconstruction projects.

In addition to incorporating detailed design information - such as the installation of safe and accessible crossing facilities for pedestrians, or intersections that are safe and convenient for bicyclists - these manuals should also be amended to provide flexibility to the highway designer to develop facilities that are in keeping with transportation needs, accessibility, community values, and aesthetics. For example, the Portland Pedestrian Design Guide (June 1998) applies to every project that is designed and built in the city, but the Guide also notes that:

"Site conditions and circumstances often make applying a specific solution difficult. The Pedestrian Design Guide should reduce the need for ad hoc decision by providing a published set of guidelines that are applicable to most situations. Throughout the guidelines, however, care has been taken to provide flexibility to the designer so she or he can tailor the standards to unique circumstances. Even when the specific guideline cannot be met, the designer should attempt to find the solution that best meets the pedestrian design principles described [on the previous page]"

In the interim, these manuals may be supplemented by stand-alone bicycle and pedestrian facility manuals that provide detailed design information addressing on-street bicycle facilities, fully accessible sidewalks, crosswalks, and shared use paths, and other improvements.

Examples: Florida DOT has integrated bicycle and pedestrian facility design information into its standard highway design manuals and New Jersey DOT is in the process of doing so. Many States and localities have developed their own bicycle and pedestrian facility design manuals, some of which are listed in the final section of this document.

**Applying Engineering Judgment to Roadway Design**

In rewriting manuals and developing standards for the accommodation of bicyclists and pedestrians, there is a temptation to adopt "typical sections" that are applied to roadways without regard to travel speeds, lane widths, vehicle mix, adjacent land uses, traffic volumes and other critical factors. This approach can lead to inadequate provision on major roads (e.g. a four foot bike lane or four foot sidewalk on a six lane high-speed urban arterial) and the over-design

of local and neighborhood streets (e.g. striping bike lanes on low volume residential roads), and leaves little room for engineering judgment.

After adopting the policy that bicyclists and pedestrians (including people with disabilities) will be fully integrated into the transportation system, State and local governments should encourage engineering judgment in the application of the range of available treatments.

For example:
• Collector and arterial streets shall typically have a minimum of a four foot wide striped bicycle lane, however wider lanes are often necessary in locations with parking, curb and gutter, heavier and/or faster traffic.

• Collector and arterial streets shall typically have a minimum of a five foot sidewalk on both sides of the street, however wider sidewalks and landscaped buffers are necessary in locations with higher pedestrian or traffic volumes, and/or higher vehicle speeds. At intersections, sidewalks may need to be wider to accommodate accessible curb ramps.

• Rural arterials shall typically have a minimum of a four foot paved shoulder; however wider shoulders (or marked bike lanes) and accessible sidewalks and crosswalks are necessary within rural communities and where traffic volumes and speeds increase.

This approach also allows the highway engineer to achieve the performance goal of providing safe, convenient, and comfortable travel for bicyclists and pedestrians by other means. For example, if it would be inappropriate to add width to an existing roadway to stripe a bike lane or widen a sidewalk, traffic calming measures can be employed to reduce motor vehicle speeds to levels more compatible with bicycling and walking.

**Actions**
The United States Department of Transportation encourages States, local governments, professional associations, other government agencies and community organizations to adopt this Policy Statement as an indication of their commitment to accommodating bicyclists and pedestrians as an integral element of the transportation system. By so doing, the organization or agency should explicitly adopt one, all, or a combination of the various approaches described above AND should be committed to taking some or all of the actions listed below as appropriate for their situation.

a) Define the exceptional circumstances in which facilities for bicyclists and pedestrians will NOT be required in all transportation projects.

b) Adopt new manuals, or amend existing manuals, covering the geometric design of streets, the development of roadside safety facilities, and design of bridges and their approaches so that they comprehensively address the development of bicycle and pedestrian facilities as an integral element of the design of all new and reconstructed roadways.

c) Adopt stand-alone bicycle and pedestrian facility design manuals as an interim step towards the adoption of new typical sections or manuals covering the design of streets and highways.

d) Initiate an intensive re-tooling and re-education of transportation planners and engineers to make them conversant with the new information required to accommodate bicyclists and pedestrians. Training should be made available for, if not required of, agency traffic engineers and consultants who perform work in this field.

**Conclusion**

There is no question that conditions for bicycling and walking need to be improved in every community in the United States; it is no longer acceptable that 6,000 bicyclists and pedestrians are killed in traffic every year, that people with disabilities cannot travel without encountering barriers, and that two desirable and efficient modes of travel have been made difficult and uncomfortable.

Every transportation agency has the responsibility and the opportunity to make a difference to the bicycle-friendliness and walkability of our communities. The design information to accommodate bicyclists and pedestrians is available, as is the funding. The United States Department of Transportation is committed to doing all it can to improve conditions for bicycling and walking and to make them safer ways to travel.

**Additional Information and Resources**

General Design Resources

*A Policy on Geometric Design of Highways and Streets*, 1994 (The Green Book). American Association of State Highway and Transportation Officials (AASHTO), P.O. Box 96716, Washington, DC, 20090-6716, Phone: (888) 227-4860.

*Highway Capacity Manual, Special Report 209*, 1994. Transportation Research Board, Box 289, Washington, DC 20055, Phone: (202) 334-3214. Next Edition: FHWA Research Program project has identified changes to HCM related to bicycle and pedestrian design.

*Manual on Uniform Traffic Control Devices*, 1988. Federal Highway Administration (FHWA), Superintendent of Documents. P.O. Box 371954, Pittsburgh, PA 15250-7954. Next Edition: 2000, will incorporate changes to Part IX that will soon be subject of Notice of Proposed Rulemaking.

*Flexibility in Highway Design*, 1997. FHWA. HEP 30, 400 Seventh Street SW, Washington, DC 20590.

Pedestrian Facility Design Resources

*Design and Safety of Pedestrian Facilities, A Recommended Practice*, 1998. Institute of Transportation Engineers, 525 School Street, S.W, Suite 410, Washington, DC 20024-2729, Phone: (202) 554-8050.

*Pedestrian Compatible Roadways-Planning and Design Guidelines*, 1995. Bicycle / Pedestrian Transportation Master Plan, Bicycle and Pedestrian Advocate, New Jersey Department of Transportation, 1035 Parkway Avenue, Trenton, NJ 08625, Phone: (609) 530-4578.

*Improving Pedestrian Access to Transit: An Advocacy Handbook*, 1998. Federal Transit Administration / WalkBoston. NTIS, 5285 Port Royal Road, Springfield, VA 22161.

*Planning and Implementing Pedestrian Facilities in Suburban and Developing Rural Areas*, Report No. 294A, Transportation Research Board, Box 289, Washington, DC 20055, Phone: (202) 334-3214.

*Pedestrian Facilities Guidebook*, 1997. Washington State Department of Transportation, Bicycle and Pedestrian Program, P.O. Box 47393, Olympia, WA 98504.

*Portland Pedestrian Design Guide*, 1998. Portland Pedestrian Program, 1120 SW Fifth Ave, Room 802; Portland, OR 97210. (503) 823-7004.

*Implementing Pedestrian Improvements at the Local Level*, 1999. FHWA, HSR 20, 6300 Georgetown Pike, McLean, VA . (Publication not yet available)

*AASHTO Guide to the Development of Pedestrian Facilities*, 2000. AASHTO. (Publication not yet available- currently under discussion)

**Bikeway Facility Design Resources**

*Guide for the Development of Bicycle Facilities*, 1999., American Association of State Highway and Transportation Officials (AASHTO), P.O. Box 96716, Washington, DC, 20090-6716, Phone: (888) 227-4860.

*Implementing Bicycle Improvements at the Local Level*, (1998), FHWA, HSR 20, 6300 Georgetown Pike, McLean, VA.

*Bicycle Facility Design Standards*, 1998. City of Philadelphia Streets Department, 1401 JFK Boulevard, Philadelphia, PA 19103.

*Selecting Roadway Design Treatments to Accommodate Bicyclists*, 1993. FHWA, R&T Report Center, 9701 Philadelphia Ct., Unit Q; Lanham, MD 20706. (301) 577-1421 (fax only)

*North Carolina Bicycle Facilities Planning and Design Guidelines*, 1994. North Carolina DOT, P.O. Box 25201, Raleigh, NC 27611. (919) 733-2804.

*Bicycle Facility Planning*, 1995. Pinsof & Musser. American Planning Association, Planning Advisory Service Report # 459. American Planning Association, 122 S. Michigan Ave, Suite 1600; Chicago, IL 60603.

*Florida Bicycle Facilities Planning and Design Manual*, 1994. Florida DOT, Pedestrian and Bicycle Safety Office, 605 Suwannee Street, Tallahassee, FL 32399.

*Evaluation of Shared-use Facilities for Bicycles and Motor Vehicles*, 1996. Florida DOT, Pedestrian and Bicycle Safety Office, 605 Suwannee Street, Tallahassee, FL 32399.

**Bicycle and Pedestrian Design Resources**

*Oregon Bicycle and Pedestrian Plan*, 1995. Oregon Department of Transportation, Bicycle and Pedestrian Program, Room 210, Transportation Building, Salem, OR 97310, Phone: (503) 986-3555

*Improving Conditions for Bicyclists and Pedestrians, A Best Practices Report*, 1998. FHWA, HEP 10, 400 Seventh Street SW, Washington, DC 20590.

**Traffic Calming Design Resources**

*Traffic Calming: State of the Practice*. 1999. Institute of Transportation Engineers, 525 School Street, SW, Suite 410; Washington, DC 20024.

*Florida Department of Transportation's Roundabout Guide*. Florida Department of Transportation, 605 Suwannee St., MS-82, Tallahassee, FL 23299-0450.

*National Bicycling and Walking Study. Case Study # 19, Traffic Calming and Auto-Restricted Zones and other Traffic Management Techniques-Their Effects on Bicycling and Pedestrians*, Federal Highway Administration (FHWA).

*Traffic Calming* (1995), American Planning Association, 122 South Michigan Avenue, Chicago, IL 60603

*Traditional Neighborhood Development Street Design Guidelines*, 1997. Proposed Recommended Practice, Institute of Transportation Engineers, 525 School Street, SW, Suite 410; Washington, DC 20024.

*Making Streets that Work*, City of Seattle, 600 Fourth Ave., 12th Floor, Seattle, WA 98104-1873, Phone: (206) 684-4000, Fax: (206) 684-5360.

*Traffic Control Manual for In-Street Work*, 1994. Seattle Engineering Department, City of Seattle, 600 4th Avenue, Seattle, WA 98104-6967, Phone: (206) 684-5108.

**ADA-Related Design Resources**

*Accessible Pedestrian Signals*, 1998. U.S. Access Board 1331 F Street NW, Suite 1000; Washington, DC 20004. (800) 872-2253.

*Accessible Rights of Way: A Design Manual, 1999.* U.S. Access Board, 1331 F Street NW, Suite 1000; Washington, DC 20004. (800) 872-2253.

*Designing Sidewalks and Trails for Access, Part One*. 1999. FHWA, HEPH-30, 400 Seventh Street SW, Washington, DC 20590.

*ADA Accessibility Guidelines for Buildings and Facilities*, 1998 (ADAAG). U.S. Access Board, 1331 F Street NW, Suite 1000; Washington, DC 20004. (800) 872-2253.

*Uniform Federal Accessibility Standards*, 1984 (UFAS), available from the U.S. Access Board, 1331 F Street NW, Suite 1000; Washington, DC 20004. (800) 872-2253

*Universal Access to Outdoor Recreation: A Design Guide*, 1993. PLAE, Inc., MIG Communications, 1802 Fifth Street, Berkeley, CA 94710. (510) 845-0953.

*Recommended Street Design Guidelines for People Who Are Blind or Visually Impaired*. American Council of the Blind, 1155 15th Street NW, Suite 720; Washington, DC 20005. (202) 467-5081.

**Trail Design Resources**

*Trails for the 21st Century*, 1993. Rails to Trails Conservancy, 1100 17th Street NW, 10th Floor, Washington DC 20036. (202) 331-9696.

*Greenways: A Guide to Planning, Design, and Development*, 1993. The Conservation Fund. Island Press, 1718 Connecticut Ave NW, Suite 300; Washington, DC 20009.

*Trail Intersection Design Guidelines*, 1996. Florida Department of Transportation, 605 Suwannee St., MS-82, Tallahassee, FL 23299-0450.

## Appendix B: Guidelines for Selecting Safe Routes To School

Choosing a safe bicycle route to school is different from choosing a safe walking route because bicyclists and pedestrians have different needs for maximum safety. The higher speed of bicyclists increases the need for visibility, smooth surfaces, and predictable interaction with other road users.

Note also that bicycle skills vary among students more than walking skills do, and they are usually acquired at a later age. Younger children have less skill at estimating closing speed for automobiles and have less ability to process peripheral vision. Younger children should therefore cycle mainly on less complicated streets, where they can focus on one hazard at a time. Older students will cycle faster, and so they need to have longer sight lines. Routes suitable for high schoolers may be unsuitable for elementary school students, and vice versa.

Publishing recommended routes to school is not sufficient for encouraging bicycling to school. Other measures are also needed, including bicycle education, safe bike parking, rewards for cycling (such as bike-to-school days), bike-to-school groups lead by an adult, and so forth.

When choosing safe bicycle routes to school, look for:

• The safest, most direct route. Detours to avoid hazards should not add significantly to the length of the ride, or they will be ignored.

• On-street routes. Children riding on the sidewalk have an increased risk of collision with an automobile 2.5 times over riding on the street. A “bike path” that parallels a road is the same as a sidewalk. Riding a bicycle on sidewalks is prohibited in most jurisdictions in California, at least in business districts.

Use off-street routes only when they have no intersections with streets or driveways, or when they provide a substantial short cut. The faster the cyclists, the more important it is to avoid sidewalks.

Bicyclists should ride on the right side of the street with traffic for maximum safety (wrong way sidewalk riding has the highest risk). When the road is so narrow and so busy that young cyclists cannot ride on it safely, they should walk their bikes on the sidewalk. Generally, this is only feasible to require near intersections with crossing guards.

Where uphill slopes are so steep that the cyclists cannot maintain a straight line (about percent slope equal to age up to 12 years old), students should get off and walk on their bikes on the sidewalk. Similarly steep downgrades require well-maintained brakes and training in braking on hills. Students without that training should walk their bikes down the hills.

• Adequate width of curb lane and good maintenance of road edge. For safe sharing of the curb lane by motorists and cyclists, it should be at least 14 feet wide, with no on-street parking—wider is better, particularly for younger cyclists who cannot hold as straight a line. Broken pavement and accumulated debris on the side of the road can narrow the effective width substantially. If there is a bike lane, its width can be added to the rightmost travel lane to determine if width is

adequate. On very quiet residential roads with low traffic speeds and good sight lines, even young children can safely take a lane, and wide curb lanes are not needed.

Also watch out for drain grates, potholes, obstructed visibility, dogs off-leash, and other obvious hazards. It is best to scout out the routes by bicycle and consult with bicyclists who regularly cycle in the area.

• Right turns, not left turns. It is much easier for a cyclist (particularly a beginning cyclist) to turn right than to turn left. This means that the best route away from school may differ from the best route to school.

There are two ways to do left-turns safely: merging into the left-turn lane or crossing, stopping, turning the bike in place, and crossing again. The merge-left technique can be learned by students as young as 9-10 years old (later for multi-lane streets), but younger students should cross to the far right corner and then cross over to the left.

When left-turns are necessary, it is best if they can be done from low-traffic streets onto low-traffic streets, with all-way stops or traffic signals. T-intersections make left turns even easier, since there are fewer motor vehicle movements to watch out for.

• No right-turn only lanes where cyclists go straight. Right-turn-only lanes require cyclists to merge across a lane of traffic to continue straight. This skill can be learned by middle-school students, but only with proper bicycle instruction.

Where right-turn-only lanes are unavoidable, younger cyclists should probably be directed to walk their bikes on the sidewalk.

• Few stop signs. Stopping requires significant extra effort to regain loss momentum, tempting students to run stop signs illegally. It is safer for them to ride on a slightly busier street with fewer stops and the protection of having the right of way, than to risk running stop signs.

• Only traffic signals that sense bicyclists and give sufficient green time. For a bicyclists to use intersections with traffic signals safely, the traffic signals should detect the bike and make sure there is enough green time for the cyclist to clear the intersection. Traffic signals that do no meet this standard should have their sensors adjusted and be re-timed. Younger children may need to dismount and become pedestrians, using the pedestrian push-button and walking their bikes in the crosswalk.

• Few curb cuts. The turning traffic at commercial driveways is a serious hazard to bicyclists (even more so if they are on the sidewalk).

• Low traffic volume and low speeds. Although this criterion is often the first one people think of, it is actually the least important because most accidents involve turning traffic, not passing traffic. A street with few intersections or curb cuts is safer, even if motor vehicle volume and speed is higher.

# Appendix C: CIP Cost Analysis Forms

**City of Chula Vista Bikeway Master Plan Update - 2005 - Capital Cost Estimate**

| | | | |
|---|---|---|---|
| **Segment:** | **1** | | |
| **Project Title:** | **Bayshore Bikeway between E and F Streets** | | |
| **Description:** | Class 1 Bike Path: This segment is a portion of the Bayshore Bikeway that will link the recently completed Sweetwater River bikeway bridge with the remainder of the Bayshore Bikeway to the south through the Cities of Chula Vista, San Diego and Imperial Beach. | | |
| **Length:** | 1,320 ft | = | 0.25 mi |

| **Class 1 Bike Path** | | | | |
|---|---|---|---|---|
| **Item** | **Unit** | **Unit Cost** | **Quantity** | **Total Cost** |
| Import Soil | CY | $ 25.00 | 200 | $ 5,000 |
| Excavation & Grading | LS | $ 12,000.00 | 1 | $ 12,000 |
| Removal & Disposal of Existing Improvements, Clearing & Grubbing | LS | $ 15,000.00 | 1 | $ 15,000 |
| A. C. Pavement | TON | $ 120.00 | 120 | $ 14,400 |
| 2" Aggregate Base Placement | TON | $ 100.00 | 40 | $ 4,000 |
| Remove and Replace Curb & Gutter | LF | $ 35.00 | 400 | $ 14,000 |
| 4' Chain Link Fence | LF | $ 10.00 | 600 | $ 6,000 |
| Bike Path Sign | LS | $ 5,000.00 | 1 | $ 5,000 |
| Striping | LF | $ 2.00 | 3,000 | $ 6,000 |
| Pedestrian Ramp Type 29-G | EA | $ 5,000.00 | 1 | $ 5,000 |
| Soil Testing | LS | $ 5,000.00 | 1 | $ 5,000 |
| Protection Restoration, Traffic Control | LS | $ 10,000.00 | 1 | $ 10,000 |
| ROW Acquisition & Permits | LS | $ 10,000.00 | 1 | $ 10,000 |
| Monolithic Curb, Gutter & Sidewalk | LF | $ 55.00 | 100 | $ 5,500 |
| ADA Curb Cut Ramp | EA | $ 5,000.00 | 1 | $ 5,000 |
| Pavement Markings, Symbols & Legends - Paint | LS | $ 5,000.00 | 1 | $ 5,000 |
| Road Construction Signs | EA | $ 750.00 | 2 | $ 1,500 |
| Subtotal | | | | $ 128,400 |
| Contingencies (20%) | | | | $ 25,680 |
| **Construction & Contingencies** | | | | **$ 154,080** |
| Engineering & Design (10%) | | | | $ 15,408 |
| Administration (5%) | | | | $ 7,704 |
| Construction Management (7%) | | | | $ 10,786 |
| **TOTAL COST OF PROJECT** | | | | **$ 187,978** |

## City of Chula Vista Bikeway Master Plan Update - 2005 - Capital Cost Estimate

| | | | |
|---|---|---|---|
| **Segment:** | **2** | | |
| **Project Title:** | **Utility easement between Max Avenue and Second Avenue** | | |
| **Description:** | Class 1 Bike Path: This segment would run within a utility easement from Max Avenue at the east end of Loma Verde Park to approximately 600 feet west of Second Avenue, within two blocks of the South Chula Vista Library. | | |
| **Length:** | 5,821 ft | = | 1.10 mi |

**Class 1 Bike Path**

| Item | Unit | Unit Cost | Quantity | Total Cost |
|---|---|---|---|---|
| Removal & Disposal of Existing Improvements, Clearing & Grubbing | LS | $ 15,000.00 | 1 | $ 15,000 |
| A. C. Pavement | TON | $ 120.00 | 210 | $ 25,200 |
| 2" Aggregate Base Placement | TON | $ 100.00 | 70 | $ 7,000 |
| 4' Chain Link Fence | LF | $ 10.00 | 10,000 | $ 100,000 |
| Bike Path Sign | LS | $ 5,000.00 | 4 | $ 20,000 |
| Striping | LF | $ 2.00 | 12,000 | $ 24,000 |
| ROW Acquisition & Permits | LS | $ 7,500.00 | 1 | $ 7,500 |
| ADA Curb Cut Ramp | EA | $ 5,000.00 | 2 | $ 10,000 |
| Subtotal | | | | $ 208,700 |
| Contingencies (20%) | | | | $ 41,740 |
| **Construction & Contingencies** | | | | **$ 250,440** |
| Engineering & Design (10%) | | | | $ 25,044 |
| Administration (5%) | | | | $ 12,522 |
| Construction Management (7%) | | | | $ 17,531 |
| **TOTAL COST OF PROJECT** | | | | **$ 305,537** |

**City of Chula Vista Bikeway Master Plan Update - 2005 - Capital Cost Estimate**

| | | | |
|---|---|---|---|
| **Segment:** | **3** | | |
| **Project Title:** | **East "H" Street between Buena Vista Way and Otay Lakes Road** | | |
| **Description:** | Class 1 Bike Path: This project is unusual because it provides parallel Class 1 paths on either side of a major roadway. This segment would provide a safer route especially for eastbound cyclists, including students turning south on Otay Lakes Road to Southwestern College. | | |
| **Length:** | 2,640 ft | = | 0.50 mi |

**Class 1 Bike Path**

| Item | Unit | Unit Cost | Quantity | Bikeway Costs | |
|---|---|---|---|---|---|
| Pavement | | | | | |
| 12' PCC Bike Path / Sidewalk | SF | $5 | 29,040 | 1 | $ 145,200 |
| 4' PCC Sidewalk on Driveway | SF | $6 | 1,600 | | $ - |
| Sidewalk west of Buena Vista | SF | $6 | 5,200 | 1 | $ 31,200 |
| Retaining Wall | SF | $60 | 3,880 | 0.5 | $ 116,400 |
| Signing and Striping | | | | | |
| For west of Buena Vista | | | | | $ - |
| - Striping | LF | $3.50 | 1,300 | 1 | $ 4,550 |
| - Bike Lane Signs | EA | $200 | 2 | 1 | $ 400 |
| Curb/Gutter | LF | $25 | 1,500 | 1 | $ 37,500 |
| Ped. Ramp (G-29) | EA | $1,500 | 1 | 1 | $ 1,500 |
| Signal Modification | LS | $20,000 | 2 | 1 | $ 40,000 |
| Inlet Relocation | EA | $6,000 | 1 | 1 | $ 6,000 |
| 18" RCP Storm Drain Pipe | LF | $90 | 10 | 1 | $ 900 |
| NPDES Filter | EA | $10,000 | 1 | 1 | $ 10,000 |
| Traffic Control | LS | $25,000 | 1 | 0.4 | $ 10,000 |
| Clearing and Grubbing | SF | $5 | 37,900 | 0.5 | $ 94,750 |
| Tree Removal | EA | $1,500 | 10 | 1 | $ 15,000 |
| Landscaping/Irrigation | SF | $5 | 37,900 | 0.5 | $ 94,750 |
| Demolition | LS | $50,000 | 1 | 0.5 | $ 25,000 |
| Export | CF | $15 | 1,800 | 0 | $ - |
| Subtotal | | | | | $ 633,150 |
| Contingencies (20%) | | | | | $ 126,630 |
| **Construction & Contingencies** | | | | | **$ 759,780** |
| Engineering Design & Surveying (25%) | | | | | $ 189,945 |
| Administration (5%) | | | | | $ 37,989 |
| Construction Management (7%) | | | | | $ 53,185 |
| **TOTAL COST OF PROJECT** | | | | | **$ 1,040,899** |

## City of Chula Vista Bikeway Master Plan Update - 2005 - Capital Cost Estimate

| | |
|---|---|
| **Segment:** | **4** |
| **Project Title:** | **Main Street between Industrial Boulevard and I - 805** |
| **Description:** | Class 2 Bicycle Lane: This segment would provide a safer and more consistent facility for cyclists. An interim Class 3 Bike Route will be provided due to on-street parking needs and a limited curb lane width. This project will need to be constructed in conjunction with a future street widening project, since additional right-of-way is required and utility relocation is needed. The final cost of the Class 2 Bicycle Lane would be determined in the future. |
| **Length:** | 14,400 ft = 2.73 mi |

**Class 3 Bike Route**

| Item | Unit | Unit Cost | Quantity | Total Cost |
|---|---|---|---|---|
| Bike Route Signs | EA | $ 100.00 | 22 | $ 2,200.00 |
| Subtotal | | | | $ 2,200 |
| Contingencies (20%) | | | | $ 440 |
| **Construction & Contingencies** | | | | **$ 2,640** |
| Engineering & Design (10%) | | | | $ 264 |
| Administration (5%) | | | | $ 132 |
| Construction Management (7%) | | | | $ 185 |
| **TOTAL COST OF PROJECT** | | | | **$ 3,221** |

**Class 2 Bike Lane**

| Item | Unit | Unit Cost | Quantity | Total Cost |
|---|---|---|---|---|
| Bike Lane Striping | LF | $ 1.25 | 28,800.00 | $ 36,000.00 |
| Pavement Markings | EA | $ 100.00 | 22.00 | $ 2,200.00 |
| Signs | EA | $ 100.00 | 22.00 | $ 2,200.00 |
| R/W Acquisition | SF | $ 50.00 | 360 | $ 18,000 |
| Traffic Control | LS | $ 15,000.00 | 1.00 | $ 15,000.00 |
| Subtotal | | | | $ 73,400 |
| Contingencies (20%) | | | | $ 14,680 |
| **Construction & Contingencies** | | | | **$ 88,080** |
| Engineering & Design (10%) | | | | $ 8,808 |
| Administration (5%) | | | | $ 4,404 |
| Construction Management (7%) | | | | $ 6,166 |
| **TOTAL COST OF PROJECT** | | | | **$ 107,458** |

**City of Chula Vista Bikeway Master Plan Update - 2005 - Capital Cost Estimate**

| | | | |
|---|---|---|---|
| **Segment:** | **5** | | |
| **Project Title:** | **Industrial Boulevard from "L" Street to Main Street** | | |
| **Description:** | Class 2 Bike Lane: This segment would provide a more direct north-south route for commuters who would prefer not to use the Bayshore Bikeway. It includes the short segment of L Street west of Industrial Boulevard. A Class 2 Bike Lane will be the final improvement, but a Class 3 Route will be provided as an interim facility. | | |
| **Length:** | 7,890 ft | = | 1.49 mi |

**Class 3 Bike Route**

| Item | Unit | Unit Cost | Quantity | Total Cost |
|---|---|---|---|---|
| Bike Route Signs | EA | $ 100.00 | 16.00 | $ 1,600 |
| Subtotal | | | | $ 1,600 |
| Contingencies (20%) | | | | $ 320 |
| **Construction & Contingencies** | | | | **$ 1,920** |
| Engineering & Design (10%) | | | | $ 192 |
| Administration (5%) | | | | $ 96 |
| Construction Management (7%) | | | | $ 134 |
| **TOTAL COST OF PROJECT** | | | | **$ 2,342** |

**Class 2 Bike Lane**

| Item | Unit | Unit Cost | Quantity | Total Cost |
|---|---|---|---|---|
| Bike Lane Striping | LF | $ 1.25 | 15,900 | $ 19,875 |
| Clearing & Grubbing | LF | $ 65.00 | 7,950 | $ 516,750 |
| Asphalt Pavement (4") | SF | $ 1.50 | 79,500 | $ 119,250 |
| Curb & Gutter | LF | $ 20.00 | 10,660 | $ 213,200 |
| Sidewalk | SF | $ 5.00 | 58,630 | $ 293,150 |
| Relocate Utilities | LS | $ 25,000.00 | 1 | $ 25,000 |
| Pedestrian Ramps | EA | $ 2,000.00 | 21 | $ 42,000 |
| Stripe Removal | LF | $ 2.50 | 11,000 | $ 27,500 |
| Pavement Markings | EA | $ 100.00 | 15 | $ 1,500 |
| Regulatory Signs | EA | $ 200.00 | 17 | $ 3,400 |
| Retaining Walls | SF | $ 50.00 | 5,400 | $ 270,000 |
| Traffic Control | LS | $ 50,000.00 | 1 | $ 50,000 |
| Subtotal | | | | $ 1,581,625 |
| Contingencies (20%) | | | | $ 316,325 |
| **Construction & Contingencies** | | | | **$ 1,897,950** |
| Engineering & Design (10%) | | | | $ 189,795 |
| Administration (5%) | | | | $ 94,898 |
| Construction Management (7%) | | | | $ 132,857 |
| **TOTAL COST OF PROJECT** | | | | **$ 2,315,499** |

## City of Chula Vista Bikeway Master Plan Update - 2005 - Capital Cost Estimate

| | |
|---|---|
| **Segment:** | **6** |
| **Project Title:** | **East "J" Street between River Ash Drive and Paseo Ranchero** |
| **Description:** | Class 2 Bike Lane: This segment would fill a gap in the midst of an existing Class 2 facility. |
| **Length:** | 3,700 ft = 0.70 mi |

**Class 2 Bike Lane**

| Item | Unit | Unit Cost | Quantity | Total Cost |
|---|---|---|---|---|
| Bike Lane Striping | LF | $ 1.25 | 7,400 | $ 9,250 |
| Stripe Removal/Sand Blasting | LF | $ 2.20 | 7,400 | $ 16,280 |
| Pavement Markings | EA | $ 100.00 | 12 | $ 1,200 |
| Signs | EA | $ 100.00 | 12 | $ 1,200 |
| Traffic Control | LS | $ 2,000.00 | 1 | $ 2,000 |
| Subtotal | | | | $ 29,930 |
| Contingencies (20%) | | | | $ 5,986 |
| **Construction & Contingencies** | | | | **$ 35,916** |
| Engineering & Design (10%) | | | | $ 3,592 |
| Administration (5%) | | | | $ 1,796 |
| Construction Management (7%) | | | | $ 2,514 |
| **TOTAL COST OF PROJECT** | | | | **$ 43,818** |

## City of Chula Vista Bikeway Master Plan Update - 2005 - Capital Cost Estimate

| | | | |
|---|---|---|---|
| **Segment:** | **7** | | |
| **Project Title:** | **Otay Lakes Road between East "H" Street and Apache Drive** | | |
| **Description:** | Class 2 Bicycle Lane: This segment would provide a safer and more consistent facility for cyclists, especially students accessing the adjacent Southwestern College Campus. Otay Lakes Road is striped with Class 2 lanes throughout its length except for this area. In addition, this segment was designated a priority project in the 1996 Bikeway Master Plan. This work will be done in conjunction with the proposed street widening of Otay Lakes Road from Telegraph Canyon Road to East "H" Street. Current schedule is in FY 2007. | | |
| **Length:** | 3,400 ft | = | 0.64 mi |

**Class 2 Bike Lane**

| Item | Unit | Unit Cost | Quantity | Total Cost |
|---|---|---|---|---|
| Bike Lane Signing | EA | $ 100.00 | 8 | $ 800 |
| Bike Lane Striping | LF | $ 1.25 | 6,800 | $ 8,500 |
| Pavement Markings | EA | $ 100.00 | 8 | $ 800 |
| Subtotal | | | | $ 10,100 |
| Contingencies (20%) | | | | $ 2,020 |
| **Construction & Contingencies** | | | | **$ 12,120** |
| Engineering & Design (10%) | | | | $ 1,212 |
| Administration (5%) | | | | $ 606 |
| Construction Management (7%) | | | | $ 848 |
| **TOTAL COST OF PROJECT** | | | | **$ 14,786** |

**City of Chula Vista Bikeway Master Plan Update - 2005 - Capital Cost Estimate**

| | |
|---|---|
| **Segment:** | **8** |
| **Project Title:** | **Bay Boulevard between "F" and "J" Streets** |
| **Description:** | Class 2 Bike Lane: This segment would provide a safer and more consistent facility for cyclists. Class 2 lanes are currently in place on the southern portion of this road. |
| **Length:** | 5,280 ft = 1.00 mi |

**Class 2 Bike Lane**

| Item | Unit | Unit Cost | Quantity | Total Cost |
|---|---|---|---|---|
| Bike Lane Striping | LF | $ 1.25 | 10,560 | $ 13,200.00 |
| Bike Lane Signing | EA | $ 100.00 | 8 | $ 800.00 |
| Stripe Removal/Sand Blasting | LF | $ 2.20 | 5,500 | $ 12,100.00 |
| Pavement Legend Removal | EA | $ 100.00 | 10 | $ 1,000.00 |
| Restripe Centerline w/Reflector | LF | $ 2.20 | 5,500 | $ 12,100.00 |
| Pavement Bike Legends | LF | $ 100.00 | 8 | $ 800.00 |
| Subtotal | | | | $ 40,000 |
| Contingencies (20%) | | | | $ 8,000 |
| **Construction & Contingencies** | | | | **$ 48,000** |
| Engineering & Design (10%) | | | | $ 4,800 |
| Administration (5%) | | | | $ 2,400 |
| Construction Management (7%) | | | | $ 3,360 |
| **TOTAL COST OF PROJECT** | | | | **$ 58,560** |

**City of Chula Vista Bikeway Master Plan Update - 2005 - Capital Cost Estimate**

| | | | |
|---|---|---|---|
| **Segment:** | **9** | | |
| **Project Title:** | **Orange Avenue between Palomar Street and Hilltop Drive** | | |
| **Description:** | Class 2 Bike Lane: This segment would provide a safer and more consistent facility for cyclists. Except for Segment 14 over I-805, the remainder of this roadway is currently striped as a Class 2 bikeway facility. This segment accesses the South Chula Vista Library. In addition, this segment was designated a priority project in the 1996 Bikeway Master Plan. Until the ultimate roadway widening is constructed, a Class 3 Bike Route will be provided due to on-street parking needs and a reduced curb lane width. | | |
| **Length:** | 8,263 ft | = | 1.56 mi |

**Class 3 Bike Route**

| Item | Unit | Unit Cost | Quantity | Total Cost |
|---|---|---|---|---|
| Bike Route Signs | EA | $ 100.00 | 16 | $ 1,600.00 |
| Subtotal | | | | $ 1,600 |
| Contingencies (20%) | | | | $ 320 |
| **Construction & Contingencies** | | | | **$ 1,920** |
| Engineering & Design (10%) | | | | $ 192 |
| Administration (5%) | | | | $ 96 |
| Construction Management (7%) | | | | $ 134 |
| **TOTAL COST OF PROJECT** | | | | **$ 2,342** |

**Class 2 Bike Lane**

| Item | Unit | Unit Cost | Quantity | Total Cost |
|---|---|---|---|---|
| Bike Lane Striping | LF | $ 1.25 | 16,526.00 | $ 20,657.50 |
| Stripe Removal | LF | $ 2.50 | 17,000.00 | $ 42,500.00 |
| Pavement Legend Removal | EA | $ 100.00 | 12 | $ 1,200.00 |
| Pavement Markings | EA | $ 100.00 | 16.00 | $ 1,600.00 |
| Regulatory Signs | EA | $ 100.00 | 16.00 | $ 1,600.00 |
| Restripe Centerline w/Reflector | LF | $ 2.20 | 8,263 | $ 18,178.60 |
| Asphalt Pavement (4") | SF | $ 1.50 | 50,000 | $ 75,000 |
| Traffic Control | LS | $ 3,000.00 | 1.00 | $ 3,000.00 |
| Subtotal | | | | $ 163,736 |
| Contingencies (20%) | | | | $ 32,747 |
| **Construction & Contingencies** | | | | **$ 196,483** |
| Engineering & Design (10%) | | | | $ 19,648 |
| Administration (5%) | | | | $ 9,824 |
| Construction Management (7%) | | | | $ 13,754 |
| **TOTAL COST OF PROJECT** | | | | **$ 239,710** |

## City of Chula Vista Bikeway Master Plan Update - 2005 - Capital Cost Estimate

| | |
|---|---|
| **Segment:** | **10** |
| **Project Title:** | **Otay Lakes Road (Northbound) between East "H" Street and Ridgeback Drive** |
| **Description:** | Class 2 Bike Lane: This segment would provide a safer and more consistent facility for cyclists. Except for Segment 7, the remainder of this roadway is currently striped as a Class 2 bikeway facility. This segment lacks striping on the east (northbound) side only. In addition, this segment was designated a priority project in the 1996 Bikeway Master Plan. This project will be constructed in conjunction with a proposed street widening project, since both additional right-of-way and utility relocation is required. |
| **Length:** | 1,600 ft = 0.30 mi |

**Class 2 Bike Lane**

| Item | Unit | Unit Cost | Quantity | Total Cost |
|---|---|---|---|---|
| Bike Lane Striping | LF | $ 1.25 | 1,600.00 | $ 2,000.00 |
| Bike Lane Signing | EA | $ 100.00 | 2.00 | $ 200.00 |
| Pavement Markings | EA | $ 100.00 | 2 | $ 200.00 |
| Subtotal | | | | $ 2,400 |
| Contingencies (20%) | | | | $ 480 |
| **Construction & Contingencies** | | | | **$ 2,880** |
| Engineering & Design (10%) | | | | $ 288 |
| Administration (5%) | | | | $ 144 |
| Construction Management (7%) | | | | $ 202 |
| **TOTAL COST OF PROJECT** | | | | **$ 3,514** |

## City of Chula Vista Bikeway Master Plan Update - 2005 - Capital Cost Estimate

| | | | |
|---|---|---|---|
| **Segment:** | **11** | | |
| **Project Title:** | **Sandpiper Way between Marina Parkway and "G" Street** | | |
| **Description:** | Class 2 Bike Lane: The route of this segment was revised to reflect the closure of Marina Parkway. | | |
| **Length:** | 2,350 ft | = | 0.45 mi |

**Class 2 Bike Lane**

| Item | Unit | Unit Cost | Quantity | Total Cost |
|---|---|---|---|---|
| Bike Lane Striping | LF | $ 1.25 | 4,700.00 | $ 5,875.00 |
| Bike Lane Signing | EA | $ 100.00 | 6.00 | $ 600.00 |
| Pavement Markings | EA | $ 100.00 | 4 | $ 400.00 |
| Subtotal | | | | $ 6,875 |
| Contingencies (20%) | | | | $ 1,375 |
| **Construction & Contingencies** | | | | **$ 8,250** |
| Engineering & Design (10%) | | | | $ 825 |
| Administration (5%) | | | | $ 413 |
| Construction Management (7%) | | | | $ 578 |
| **TOTAL COST OF PROJECT** | | | | **$ 10,065** |

## City of Chula Vista Bikeway Master Plan Update - 2005 - Capital Cost Estimate

| | |
|---|---|
| **Segment:** | **12** |
| **Project Title:** | **Main Street from Industrial Boulevard to Frontage Road West of Interstate 5** |
| **Description:** | Class 2 Bike Lane: This segment would connect the proposed Segment 5 on Industrial Blvd to Bay Blvd and the Bayshore Bikeway. Due to curb lane widths, an interim Class 3 Bike Route will be provided. Class 3 Bike Route consists of six signs. |
| **Length:** | 2,037 ft = 0.39 mi |

**Class 2 Bike Lane**

| Item | Unit | Unit Cost | Quantity | Total Cost |
|---|---|---|---|---|
| Bike Lane Striping/Signing | LF | $ 1.25 | 2,037 | $ 2,546 |
| Stripe Removal/Sandblasting | LF | $ 2.20 | 2,037 | $ 4,481 |
| Pavement Markings | EA | $ 100.00 | 7 | $ 700 |
| Subtotal | | | | $ 7,728 |
| Contingencies (20%) | | | | $ 1,546 |
| **Construction & Contingencies** | | | | **$ 9,273** |
| Engineering & Design (10%) | | | | $ 927 |
| Administration (5%) | | | | $ 464 |
| Construction Management (7%) | | | | $ 649 |
| **TOTAL COST OF PROJECT** | | | | **$ 11,313** |

**Class 3 Bike Route**

| Item | Unit | Unit Cost | Quantity | Total Cost |
|---|---|---|---|---|
| Bike Route Signs | EA | $ 100.00 | 6 | $ 600 |
| Subtotal | | | | $ 600 |
| Contingencies (20%) | | | | $ 120 |
| **Construction & Contingencies** | | | | **$ 720** |
| Engineering & Design (10%) | | | | $ 72 |
| Administration (5%) | | | | $ 36 |
| Construction Management (7%) | | | | $ 50 |
| **TOTAL COST OF PROJECT** | | | | **$ 878** |

## City of Chula Vista Bikeway Master Plan Update - 2005 - Capital Cost Estimate

| | |
|---|---|
| **Segment:** | **13** |
| **Project Title:** | **Auto Park Way between I-805 and Oleander Avenue** |
| **Description:** | Class 3 Bike Route: This segment provides access across I-805 and will connect the exiting Class 2 bikeway facilities to the east and the proposed Segment 4 to the west. This project is to be completed as part of an interchange widening project. |
| **Length:** | 1,000 ft = 0.19 mi |

**Class 3 Bike Route**

| Item | Unit | Unit Cost | Quantity | Total Cost |
|---|---|---|---|---|
| Bike Route Signs | EA | $ 100.00 | 4 | $ 400 |
| Subtotal | | | | $ 400 |
| Contingencies (20%) | | | | $ 80 |
| **Construction & Contingencies** | | | | **$ 480** |
| Engineering & Design (10%) | | | | $ 48 |
| Administration (5%) | | | | $ 24 |
| Construction Management (7%) | | | | $ 34 |
| **TOTAL COST OF PROJECT** | | | | **$ 586** |

## City of Chula Vista Bikeway Master Plan Update - 2005 - Capital Cost Estimate

| | |
|---|---|
| **Segment:** | **14** |
| **Project Title:** | **East Orange Avenue/Olympic Parkway from Melrose Ave to Oleander Avenue (over I-805)** |
| **Description:** | Class 3 Bike Route: This segment provides a bike route for cyclists to cross I-805. Class 2 bikeway facilities currently exist at either end of this segment. This project is to be completed in late 2005 as part of an interchange widening project. |
| **Length:** | 1,909 ft = 0.36 mi |

**Class 3 Bike Route**

| Item | Unit | Unit Cost | Quantity | Total Cost |
|---|---|---|---|---|
| | | | | $ - |
| Subtotal | | | | $ - |
| Contingencies (20%) | | | | $ - |
| **Construction & Contingencies** | | | | **$ -** |
| Engineering & Design (10%) | | | | $ - |
| Administration (5%) | | | | $ - |
| Construction Management (7%) | | | | $ - |
| **TOTAL COST OF PROJECT** | | | | **$ -** |

## City of Chula Vista Bikeway Master Plan Update - 2005 - Capital Cost Estimate

| | | | |
|---|---|---|---|
| **Segment:** | **15** | | |
| **Project Title:** | **Telegraph Canyon Road from Nacion Avenue to east of Halecrest Drive (under I-805)** | | |
| **Description:** | Class 3 Bike Route: This segment is proposed to be a bike route due to proposed Caltrans' Ramp Metering Project and curb lane width. | | |
| **Length:** | 1,320 ft | = | 0.25 mi |

**Class 3 Bike Route**

| Item | Unit | Unit Cost | Quantity | Total Cost |
|---|---|---|---|---|
| Bike Route Signs | EA | $ 100.00 | 6 | $ 600 |
| Subtotal | | | | $ 600 |
| Contingencies (20%) | | | | $ 120 |
| **Construction & Contingencies** | | | | **$ 720** |
| Engineering & Design (10%) | | | | $ 72 |
| Administration (5%) | | | | $ 36 |
| Construction Management (7%) | | | | $ 50 |
| **TOTAL COST OF PROJECT** | | | | **$ 878** |

## City of Chula Vista Bikeway Master Plan Update - 2005 - Capital Cost Estimate

| | |
|---|---|
| **Segment:** | **16** |
| **Project Title:** | **East "H" Street between Claire Avenue and Hidden Vista Drive (over I-805)** |
| **Description:** | Class 3 Bike Route: This segment would provide a safer and more consistent facility to cross I-805. Bikeway facilities currently exist at either end of this roadway segment. The westbound portion of this route is within the County of San Diego. Until the ultimate roadway width is constructed, a Class 3 Bike Route will be provided due to a reduced curb lane width. |
| **Length:** | 3,753 ft = 0.71 mi |

**Class 3 Bike Route**

| Item | Unit | Unit Cost | Quantity | Total Cost |
|---|---|---|---|---|
| Bike Route Signs | EA | $ 100.00 | 12 | $ 1,200.00 |
| Subtotal | | | | $ 1,200 |
| Contingencies (20%) | | | | $ 240 |
| **Construction & Contingencies** | | | | **$ 1,440** |
| Engineering & Design (10%) | | | | $ 144 |
| Administration (5%) | | | | $ 72 |
| Construction Management (7%) | | | | $ 101 |
| **TOTAL COST OF PROJECT** | | | | **$ 1,757** |

## City of Chula Vista Bikeway Master Plan Update - 2005 - Capital Cost Estimate

| | | | |
|---|---|---|---|
| **Segment:** | **17** | | |
| **Project Title:** | **Gotham Street between Otay Lakes Road and Chateau Court** | | |
| **Description:** | Class 3 Bike Route: This segment will provide a more convenient bike route for cyclists traveling between EastLake and Southwestern College than the current shortest route on East H Street. This would require cutting an access through a concrete block wall across the roadway east of Lehigh Avenue. | | |
| **Length:** | 5,246 ft | = | 0.99 mi |

**Class 3 Bike Route**

| Item | Unit | Unit Cost | Quantity | Total Cost |
|---|---|---|---|---|
| Bike Route Signs | EA | $ 100.00 | 12 | $ 1,200.00 |
| Subtotal | | | | $ 1,200 |
| Contingencies (20%) | | | | $ 240 |
| **Construction & Contingencies** | | | | **$ 1,440** |
| Engineering & Design (10%) | | | | $ 144 |
| Administration (5%) | | | | $ 72 |
| Construction Management (7%) | | | | $ 101 |
| **TOTAL COST OF PROJECT** | | | | **$ 1,757** |

## City of Chula Vista Bikeway Master Plan Update - 2005 - Capital Cost Estimate

| | | | |
|---|---|---|---|
| **Segment:** | **18** | | |
| **Project Title:** | **East "J" Street between Paseo Ranchero and Camino Calabazo** | | |
| **Description:** | Class 3 Bike Route: This segment will provide a bike route for cyclists traveling east of Paseo Ranchero. There is an existing bike route east and west of this segment. This is a conversion of the existing short Class 2 segment to Class 3 due to adjacent parking needs. | | |
| **Length:** | 1,600 ft | = | 0.30 mi |

**Class 3 Bike Route**

| Item | Unit | Unit Cost | Quantity | Total Cost |
|---|---|---|---|---|
| Bike Route Signs | EA | $ 100.00 | 24 | $ 2,400.00 |
| Stripe Removal/Sand Blasting | LF | $ 2.20 | 3,200 | $ 7,040.00 |
| Pavement Legend Removal | EA | $ 100.00 | 8 | $ 800.00 |
| Signs | EA | $ 200.00 | 8 | $ 1,600 |
| Subtotal | | | | $ 9,440 |
| Contingencies (20%) | | | | $ 1,888 |
| **Construction & Contingencies** | | | | **$ 11,328** |
| Engineering & Design (10%) | | | | $ 1,133 |
| Administration (5%) | | | | $ 566 |
| Construction Management (7%) | | | | $ 793 |
| **TOTAL COST OF PROJECT** | | | | **$ 13,800** |

## Appendix D: California Vehicle Code - Bicycle Use of Roadways:

The following sections of the California State Code are provided as a reference source concerning the legal implications of operating a bicycle on the roadways within the state of California.

## Sections 21200-21212

21200. (a) Every person riding a bicycle upon a highway has all the rights and is subject to all the provisions applicable to the driver of a vehicle by this division, including, but not limited to, provisions concerning driving under the influence of alcoholic beverages or drugs, and by Division 10 (commencing with Section 20000), Section 27400, Division 16. 7 (commencing with Section 39000), Division 17 (commencing with Section 40000. 1), and Division 18 (commencing with Section 42000), except those provisions which by their very nature can have no application. (b) (1) Any peace officer, as defined in Chapter 4. 5 (commencing with Section 830) of Title 3 of Part 2 of the Penal Code, operating a bicycle during the course of his or her duties is exempt from the requirements of subdivision (a), except as those requirements relate to driving under the influence of alcoholic beverages or drugs, if the bicycle is being operated under any of the following circumstances:

(A) In response to an emergency call.

(B) While engaged in rescue operations.

(C) In the immediate pursuit of an actual or suspected violator of the law.

(2) This subdivision does not relieve a peace officer from the duty to operate a bicycle with due regard for the safety of all persons using the highway.

21200. 5. Notwithstanding Section 21200, it is unlawful for any person to ride a bicycle upon a highway while under the influence of an alcoholic beverage or any drug, or under the combined influence of an alcoholic beverage and any drug. Any person arrested for a violation of this section may request to have a chemical test made of the person's blood, breath, or urine for the purpose of determining the alcoholic or drug content of that person's blood, and, if so requested, the arresting officer shall have the test performed. A conviction of a violation of this section shall be punished by a fine of not more than two hundred fifty dollars ($250). Violations of this section are subject to Section 13202. 5.

21201. (a) No person shall operate a bicycle on a roadway unless it is equipped with a brake which will enable the operator to make one braked wheel skid on dry, level, clean pavement.

(b) No person shall operate on the highway any bicycle equipped with handlebars so raised that the operator must elevate his hands above the level of his shoulders in order to grasp the normal steering grip area.

(c) No person shall operate upon any highway a bicycle which is of such a size as to prevent the operator from safely stopping the bicycle, supporting it in an upright position with at least one foot on the ground, and restarting it in a safe manner.

(d) Every bicycle operated upon any highway during darkness shall be equipped (1) with a lamp emitting a white light which, while the bicycle is in motion, illuminates the highway in front of the bicyclist and is visible from a distance of 300 feet in front and from the sides of the bicycle; (2) with a red reflector on the rear which shall be visible from a distance of 500 feet to the rear when directly in front of lawful upper beams of headlamps on a motor vehicle; (3) with a white or yellow reflector on each pedal visible from the front and rear of the bicycle from a distance of 200 feet; and (4) with a white or yellow reflector on each side forward of the center of the bicycle, and with a white or red reflector on each side to the rear of the center of the bicycle, except that bicycles which are equipped with reflectorized tires on the front and the rear need not be equipped with these side reflectors. Such reflectors and reflectorized tires shall be of a type meeting requirements established by the department.

(e) A lamp or lamp combination, emitting a white light, attached to the operator and visible from a distance of 300 feet in front and from the sides of the bicycle, may be used in lieu of the lamp required by clause (1) of subdivision (d).

21201. 5. (a) No person shall sell, or offer for sale, a reflex reflector or reflectorized tire of a type required on a bicycle unless it meets requirements established by the department. If there exists a federal Consumer Product Safety Commission regulation applicable to bicycle reflectors, the provisions of that regulation shall prevail over provisions of this code or requirements established by the department pursuant to this code relative to bicycle reflectors.

(b) No person shall sell, or offer for sale, a new bicycle that is not equipped with a red reflector on the rear, a white or yellow reflector on each pedal visible from the front and rear of the bicycle, a white or yellow reflector on each side forward of the center of the bicycle, and a white or red reflector on each side to the rear of the center of the bicycle, except that bicycles which are equipped with reflectorized tires on the front and rear need not be equipped with these side reflectors.

(c) Area reflectorizing material meeting the requirements of Section 25500 may be used on a bicycle.

21202. (a) Any person operating a bicycle upon a roadway at a speed less than the normal speed of traffic moving in the same direction at such time shall ride as close as practicable to the right-hand curb or edge of the roadway except under any of the following situations:

(1) When overtaking and passing another bicycle or vehicle proceeding in the same direction.

(2) When preparing for a left turn at an intersection or into a private road or driveway.

(3) When reasonably necessary to avoid conditions (including, but not limited to, fixed or moving objects, vehicles, bicycles, pedestrians, animals, surface hazards, or substandard width lanes) that make it unsafe to continue along the right-hand curb or edge, subject to the provisions of Section 21656. For purposes of this section, a “substandard width lane” is a lane that is too narrow for a bicycle and a vehicle to travel safely side by side within the lane.

(b) Any person operating a bicycle upon a roadway of a highway, which highway carries traffic in one direction only and has two or more marked traffic lanes, may ride as near the left-hand curb or edge of such roadway as practicable.

21203. No person riding upon any motorcycle, motorized bicycle, bicycle, coaster, roller skates, sled, or toy vehicle shall attach the same or himself to any streetcar or vehicle on the roadway.

21204. (a) No person operating a bicycle upon a highway shall ride other than upon or astride a permanent and regular seat attached thereto.

(b) No operator shall allow a person riding as a passenger, and no person shall ride as a passenger, on a bicycle upon a highway other than upon or astride a separate seat attached thereto. If the passenger is four years of age or younger, or weighs 40 pounds or less, the seat shall have adequate provision for retaining the passenger in place and for protecting the passenger from the moving parts of the bicycle.

21205. No person operating a bicycle shall carry any package, bundle or article which prevents the operator from keeping at least one hand upon the handlebars.

21206. This chapter does not prevent local authorities, by ordinance, from regulating the registration of bicycles and the parking and operation of bicycles on pedestrian or bicycle facilities, provided such regulation is not in conflict with the provisions of this code.

21207. (a) This chapter does not prohibit local authorities from establishing, by ordinance or resolution, bicycle lanes separated from any vehicular lanes upon highways, other than state highways as defined in Section 24 of the Streets and Highways Code and county highways established pursuant to Article 5 (commencing with Section 1720) of Chapter 9 of Division 2 of the Streets and Highways Code.

(b) Bicycle lanes established pursuant to this section shall be constructed in compliance with Section 891 of the Streets and Highways Code.

21207. 5. Notwithstanding Sections 21207 and 23127 of this code, or any other provision of law, no motorized bicycle may be operated on a bicycle path or trail, bikeway, bicycle lane established pursuant to Section 21207, equestrian trail, or hiking or recreational trail, unless it is within or adjacent to a roadway or unless the local authority or the governing body of a public agency having jurisdiction over such path or trail permits, by ordinance, such operation.

21208. (a) Whenever a bicycle lane has been established on a roadway pursuant to Section 21207, any person operating a bicycle upon the roadway at a speed less than the normal speed of traffic moving in the same direction shall ride within the bicycle lane, except that such person may move out of the lane under any of the following situations:

(1) When overtaking and passing another bicycle, vehicle, or pedestrian within the lane or about to enter the lane if such overtaking and passing cannot be done safely within the lane.

(2) When preparing for a left turn at an intersection or into a private road or driveway.

(3) When reasonably necessary to leave the bicycle lane to avoid debris or other hazardous conditions.

(b) No person operating a bicycle shall leave a bicycle lane until the movement can be made with reasonable safety and then only after giving an appropriate signal in the manner provided in Chapter 6 (commencing with Section 22100) in the event that any vehicle may be affected by the movement.

21209. (a) No person shall drive a motor vehicle in a bicycle lane established on a roadway pursuant to Section 21207 except as follows:

(1) To park where parking is permitted.

(2) To enter or leave the roadway.

(3) To prepare for a turn within a distance of 200 feet from the intersection.

(b) This section does not prohibit the use of a motorized bicycle in a bicycle lane, pursuant to Section 21207. 5, at a speed no greater than is reasonable or prudent, having due regard for visibility, traffic conditions, and the condition of the roadway surface of the bicycle lane, and in a manner which does not endanger the safety of bicyclists.

21210. No person shall leave a bicycle lying on its side on any sidewalk, or shall park a bicycle on a sidewalk in any other position, so that there is not an adequate path for pedestrian traffic. Local authorities may, by ordinance or resolution, prohibit bicycle parking in designated areas of the public highway, provided that appropriate signs are erected.

21211. (a) No person shall stop, stand, sit, or loiter upon any class I bikeway, as defined in subdivision (a) of Section 890. 4 of the Streets and Highways Code, or any other public or private bicycle path or trail, if the stopping, standing, sitting, or loitering impedes or blocks the normal and reasonable movement of any bicyclist.

(b) No person shall place or park any bicycle, vehicle, or any other object upon any bikeway or bicycle path or trail, as specified in subdivision (a), which impedes or blocks the normal and reasonable movement of any bicyclist unless the placement or parking is necessary for safe operation or is otherwise in compliance with the law.

(c) This section does not apply to drivers or owners of utility or public utility vehicles, as provided in Section 22512.

(d) This section does not apply to owners or drivers of vehicles who make brief stops while engaged in the delivery of newspapers to customers along the person's route.

21212. (a) A person under 18 years of age shall not operate a bicycle, or ride upon a bicycle as a passenger, upon a street, bikeway, as defined in subdivision (a) of Section 2373 of the Streets and Highways Code, or any other public bicycle path or trail unless that person is wearing a properly fitted and fastened bicycle helmet that meets the standards of the American National Standards Institute (ANSI Z 90. 4 bicycle helmet standard) or the Snell Memorial Foundation's Standard for Protective Headgear for Use in Bicycling. This requirement also applies to a person who rides upon a bicycle while in a restraining seat that is attached to the bicycle or in a trailer towed by the bicycle.

(b) Any helmet sold or offered for sale for use by operators and passengers of bicycles shall be conspicuously labeled in accordance with the standard described in subdivision (a) which shall constitute the manufacturer's certification that the helmet conforms to the applicable safety standards.

(c) No person shall sell, or offer for sale, for use by an operator or passenger of a bicycle any safety helmet which is not of a type meeting requirements established by this section.

(d) (1) A person who violates a requirement of this section in 1994 shall be warned of the violation by the enforcing official, but shall not be issued a notice to appear.

(2) Any charge under this subdivision shall be dismissed when the person charged alleges in court, under oath, that the charge against the person is the first charge against that person under this subdivision, unless it is otherwise established in court that the charge is not the first charge against the person.

(e) Except as provided in subdivision (d), a violation of this section is an infraction punishable by a fine of not more than twenty-five dollars ($25). The parent or legal guardian having control or custody of an unemancipated minor whose conduct violates this section shall be jointly and severally liable with the minor for the amount of the fine imposed pursuant to this subdivision.

(f) Notwithstanding Section 1463 of the Penal Code or any other provision of law, the fines collected for a violation of this section shall be allocated as follows:

(1) Seventy-two and one-half percent of the amount collected shall be deposited in a special account of the county health department, to be used for bicycle safety education and for assisting low-income families in obtaining approved bicycle helmets for children under the age of 18 years, either on a loan or purchase basis. The county may contract for the implementation of this program, which, to the extent practicable, shall be operated in conjunction with the child passenger restraint program pursuant to Section 27360.

(2) Two and one-half percent of the amount collected shall be deposited in the county treasury to be used by the county to administer the program described in paragraph (1).

(3) If the violation occurred within a city, 25 percent of the amount collected shall be transferred to and deposited in the treasury of that city. If the violation occurred in an unincorporated area, this 25 percent shall be deposited and used pursuant to paragraph (1).